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REPORT OF A CASE OF PARTIAL SPONTANEOUS AMPUTATION OF THE METACARPUS IN UTERO, WITH EXPLANATORY REMARKS.

Translation of a paper read before the Society for Physical and Medical Science of Würzburg, May 8th, 1869. By Dr. PAUL MUNDE, House-physician in the Lying-in Hospital, Clinical Assistant to Prof. von Scanzoni, and Tutor at the School for Midwifery in Würzburg, Bavaria.

DURING the last summer, in my capacity as house-physician of the Lying-in Hospital of this city, I had occasion to observe a case of spontaneous amputation of the metacarpus in utero, in a, with one exception, otherwise healthy and full-grown child. Considering the comparative rarity of this anomaly, there being, so far as I have been able to ascertain, not more than about 140 cases on record, of which barely one-half are well-authenticated instances of the deformity, I thought an account of a new case, which in some respects differs from most of those already published, might be of interest and might assist in clearing up the mystery still hanging over this phenomenon, the publishing of new cases and their careful explanation being the only way in which this problem can be solved.

B. L., a healthy, well-formed woman, 34 years of age, was delivered August 14th, 1868, of her third child (the two first deliveries having been perfectly regular, and the children being well-developed). The female child was born in the first vertex presentation, after a birth of seven hours' duration, weighed 6 lbs. 5 oz., and was strong and well-developed; it presented, however, an irregularity of formation in both hands, which attracted my attention and caused me to examine its limbs more closely than is usually done.

The right arm and hand were of normal size and shape, with the exception that the hand showed at about the middle of the metacarpus a distinct constriction; at the ulnar and radial borders of the metacarpus was a deep groove, from which projected at either side a fleshy process, terminating in a thread-like fibrous cord (similar to the columnæ papillares and chordæ tendineæ of the heart) which was spread in the form of a bridge over the vola manûs and united the two fleshy projections.

Between the two points of insertion the cord was free, and the skin below showed no sign of constriction. The grooves at the borders of the hand were connected over the dorsum manûs by a shallow but distinct furrow, which did not correspond to any usual groove or wrinkle. The fibrous cord stretched across the palm is one inch long, and seems to have been vascular, its ends showing a black, thrombus-like appearance. This cord remained in situ during four days, when one end became detached, and, in order to prevent its being lost, I removed it entirely. The microscopical examination of the cord, kindly performed for me by my friend, Dr. Karl Koester, assistant and tutor under Prof. von Recklinghausen, at the Pathological Institute of this University, showed it to consist of young fibrous tissue (fusiform cells) intermingled at intervals with epithelium.

The whole appearance of the metacarpus was such as, at first sight, to cause me to think of an attempt at spontaneous amputation, which opinion was coincided with by my *chef*, Prof. v. Scanzoni, and by several other medical gentlemen to whom I showed the child.

The first joint of each of the three middle fingers of the same hand presented also, immediately above the knuckles, a distinct and perfect shallow constriction, the place being one where usually no wrinkle is found. The motions of the hand were perfect, and there was no apparent diminution of vigor. The left hand, although showing no signs of constriction, was still more deformed than the right, being much smaller, narrower, and totally without power; the arm also appeared atrophied and the wrist joint imperfectly developed, the place of the carpus being seemingly supplied by a bursa, and the child keeping the hand always in a drooping position, without being able to extend it. In fact, the extensors

appeared to be wanting, although the flexors were present, for the fingers were generally kept slightly flexed.

Otherwise the child was perfectly healthy and well-formed, and throve at its mother's breast. The woman called on me about the middle of last February, and I found the signs of constriction as plain as ever in the right hand, which had increased in size and vigor in accordance with the age of the child. The left hand was still comparatively small and powerless. Before attempting to offer any explanation of this case, it will be appropriate to give a short account of the theories and views entertained on the subject of "Spontaneous Amputation" up to the present period; a question which has given rise to much controversy in the medical world, especially in the obstetrical and pathological parts of it, and which is still far enough from being satisfactorily explained.

Although Hippocrates does not record any distinct cases, still he was aware of the existence of intrauterine deformities, and ascribed them to the influence of blows or falls inflicted upon the mother, "the part of the child struck being afterwards found deformed." Up to the present century all congenital deformities were supposed to be owing either to the cause just mentioned, to an arrest of development (Haller, elementa, physiologicæ corporis humani, 1778), or to a psychological phenomenon, in consequence of which the child of a woman, who during her pregnancy was subjected to some mental shock, is found deformed in accordance with the nature of the exciting cause. This latter opinion is one still largely held by the public, and not entirely abandoned even by part of the profession.

Up to the year 1812 I have found only two cases of congenital absence of limbs accurately described. One is mentioned by Aldrovaude in a work on human and animal monsters, published in 1642, as having occurred in 1497 (reported by Nonancourt in his thesis on Spontaneous Amputation, Strasbourg, 1864); the second is published by Schæffer (Fœtus cum matre per nervos commercium, Dissertatio, Erlangen, 1775), but neither attempt any explanations of the origin of the deformity.

Chaussier (Discours à l'Hôp. de Méd.—Dictionnaire des Sciences Méd. tom. xv. et xxiv., 1812) was the first to call attention to the species of deformity in question, and to the resemblance of the parts to the stump of an amputated limb. Hence arose the term "Spontaneous Amputation," under which is understood a process, by means of which a part of an already formed limb of a fœtus in utero is gradually detached.

The cases of spontaneous amputation which have come under notice may be divided into four chief classes:—

1. Total spontaneous amputation if the limb was completely detached.

2. Partial spontaneous amputation if the part to be divided was still more or less adherent.

3. Such cases in which the cause of the separation was found.

4. Such cases in which the detached limb was found.

Chaussier considered the mutilation to have been caused by intrauterine inflammation, mortification and consequent formation of a line of demarcation, which gradually detached the diseased limb. In this view he was seconded by the French authors Billard, Marat, Desormeaux, Richerand and Graetzer, none of whom, however, went into any further particulars as to the cause and nature of the affection.

Montgomery (*Dublin Medical Journal*, i. and ii. 1832), Hennig (*Virchow's Archiv.*, 1860), and Martin (*Jenaische Annalen*, 1850) refute this theory, affirming, as I believe justly, that no case of intrauterine (intramembranous) mortification (gangrene) has as yet been described, and that the presence of air is absolutely necessary to such a process.

According to Schnieder (*Wien. Wochenschr.*, 1865) the presence of air and principally oxygen is absolutely indispensable to the formation of wet or humid gangrene. The idea of mummification of the diseased part loses ground from the fact of the impossibility of the evaporation of the fluid, the limb floating in the liquor amnii. Besides, according to analyses of Scherer and Voit (Scanzoni's Obstetrics, 1867) the liquor amnii possesses strong antiseptic powers, varying according to the time of pregnancy. In the year 1832 Montgomery (*Dublin Medical Journal*) published several cases of spontaneous amputation, and accounted for the deformity by supposing the limb to have been encircled and constricted by bands of plastic lymph, without, however, offering any opinion as to the origin of such bands. Simpson (*Dublin Med. Jour.* 1836), Simonart (*Archive de la Méd. Belge*, 1846), and others, are of the same opinion, besides offering other explanations to be referred to hereafter. Martin (loc. cit.) considers the agency of such organic bands as doubtless, but says that they are mainly active in producing partial amputation and never total division.

Gurlt (*Med. Zeitung für Heilkunde in Preussen*, ii. Jahr., 1833) joins Montgomery in the assertion that the constriction is caused by organic bands, and believes the ligatures to be undivided processes of the original or blastodermic membrane from which the fœtus is formed, be this amnion or umbilical vesicle. These processes, he says, are drawn into cords by the motions of the fœtus, and finally catch the developing limbs in a species of noose or knot. As an additional agent, a retraction of the fibres of the skin takes place, by means of which the resistance to the constricting cords is lessened.

Nettekoven (*Organ für die ges. Heilkunde, Bonn*, i. 3) is of the same opinion. Martin (loc. cit.), however, contends that the formation of the amnion takes place at a period when the extremities are not yet formed or are mere rudiments, and that no case is known in which the remnants of such an amniotic fold on the fœtus or the amnion has been found.

Simpson (*Dublin Med. Jour.*, 1836) adopts Montgomery's view of the subject, and thinks that the bands consist of organized lymph effused by inflammatory action. The seat of the inflammation he considers to be the skin of the fœtus, especially at spots which by juxtaposition become united, the plastic lymph being then drawn into bands by the motions of the child; such a connection between the fœtal integuments and the amnion, he says, has been proved by several cases.

Further, Simpson mentions that he was "at one time inclined to believe that spontaneous amputation of the fœtal limbs might be occasionally produced in another mode, viz., by previous fracture of the bone," this opinion being suggested by an illustrative case. Still he does not seem to assert anything more than the possibility of such an occurrence.

Simonart (loc. cit.), while following the theory of Montgomery, Gurlt and Simpson, considers spontaneous amputation to arise always from constriction either through the umbilical cord or through accidental bands, which latter are of three kinds:—amniotic, fœtal, and fœto-amniotic. They all arise in consequence of a local inflammation, and those of the fœtus originate in an ulceration of the skin, produced by encircling bands of the umbilical cord, after which a strong cicatricial contraction takes place, thus constricting the diseased part. Adjacent portions of skin may also adhere, and the adhesion be gradually drawn into a band by the movements of the fœtus.

Hennig (*Virchow's Archiv*, 1860) and Avrard (*Jour. des Con. Méd.* 1846) take the same view of the subject.

Simonart also considered the causes of spontaneous amputation as promoting premature delivery, and affirmed that all children afflicted with this deformity were born at or before the sixth month of pregnancy. This assertion was denied by Avrard (loc. cit.) and is refuted by a number of well-authenticated cases.

Martin (loc. cit.), attracted by the case of a child, which was born with its humerus amputated, the mutilation appearing to have resulted in consequence of a fracture of the limb caused by direct violence to the mother (a fall from a ladder), discusses the different theories on the origin of the deformity, and comes to the conclusion that previous fracture, laceration of the blood-vessels and nerves, and consequent atrophy, mummification and detachment of the limb, is one of the most frequent causes of spontaneous amputation. The only other manner of detachment recognized by him is the one described by Montgomery, viz., that by means of organic bands. Martin does not seem to have been acquainted with the fact, that Simpson had previously suggested this explanation; at least, he does not mention it.

G. Braun (*Wien. Zeitschr.*, 1854 and 1862) believes in the possibility of the amniotic folds mentioned by Gurlt, their principal cause being the absence of a sufficient quantity or the late formation of the liquor amnii, thus leaving the amnion in contact with the fœtus, and giving rise to inflammation and adhesions.

Of this opinion are C. Braun, Friedinger, Rokitansky, Schuller, Stadthagen, H. Mueller and Jenssen.

G. Braun further mentions the possibility of the bursting of the amnion in cases of hydra-llaute (a collection of fluid between amnion and chorion), the consequent flaccidity of the membrane and its possible torsion into cords by movements of the fœtus, such as have been found in some of the reported cases.

Credé (Dissertatio, Leipzig, 1858, de fœtûs in utero mutilatione, &c.), after describing a case, mentions the fact that inflammations before birth principally furnish plastic exudations, but that, considering the immense *vis fœtus plastica*, not even inflammation need always be present to produce such a result.

Barkow (Contributions to Pathological Embryology, 1859) advocates the theory of Chaussier, and on the strength of a case

observed, attributes the gangrene to thrombosis of a main bloodvessel and insufficient collateral circulation. The grounds on which the theory of Chaussier can be refuted are, of course, also valid in this case.

Kristeller (Monatschrift für Geburtskunde, 1859) publishes a case and follows the opinion of Simonart, with the exception that he does not consider real ulceration necessary, but any inflammation of the fœtal skin capable of producing a cicatricial contraction. He differs principally from Simonart in considering the dermatitis to be idiopathic, whereas S. believes it to result from the irritation of constricting bands or the umbilical cord.

This explanation seems adaptable to a number of cases, especially of partial amputation, in which no remnants of cords or bands, or of previous amnitis, could be found after birth.

Virchow, in a discourse held at a meeting of the Obstetrical Society in Berlin in 1862, expressed his disbelief in the process called spontaneous amputation, and considered the deformity to arise from an inflammation of the undeveloped limb, the ensuing cicatrix preventing its further development. This doubt in the existence of spontaneous amputation is shared by most pathological anatomists of the day, probably from the reason that none of them have paid sufficient attention to the subject or have seen cases demonstrating the process, such as are described by Montgomery, Martin, Simpson and others, which come mostly under the observation of physicians and obstetricians.

Scanzoni (Obstetric., vol. ii. page 157, 1867) believes bands to be the most common agents in spontaneous amputation, but does not believe in an amnitis, and considers the ligatures to be formed by a plastic exudation furnished by the walls of the uterus, and then passed by transudation through the chorion and amnion.

While admitting this view, I still am of opinion that the want of bloodvessels in the amnion does not necessarily exclude the possibility of amnitis, and refer for my authority to the recent investigations of Recklinghausen and Cohnheim on inflammation of another bloodless membrane, the cornea.

Finally, the possibility of constriction and spontaneous amputation of a limb by means of the umbilical cord has been mentioned by Montgomery, Simpson, Velpeau, Chailly, Cazeaux and others, and some 20 cases of this phenomenon are on record, the children in all of them having been born before the fifth month, the pressure on the cord preventing circulation and causing the death of the fœtus before complete amputation had taken place. Some authors mention an abnormally short umbilical cord as an agent in spontaneous amputation. How congenital abnormal shortness of the cord can produce spontaneous amputation is hard to understand; and in cases in which length of the cord is diminished because it encircles one of the fœtal limbs, its shortness is the result of the process effecting the amputation and not its cause.

After having perused the mass of literature existing on this subject (those authors only being cited who offered new views of the question), I do not think that any doubt as to the existence of this anomaly can be entertained, and consider the scruples of the pathological authorities of the day to be completely outweighed by the evidence of the distinguished physicians and observers named as having written on the subject.

Of the 140 cases, however, which have been published since Chaussier first called special attention to the subject, not more than 50 can be considered as proving the existence of spontaneous amputation by means of bands, ligatures, fractures, cicatrices, &c., and the other 90 comprise instances where the probability is rather on the side of an arrest of development as the cause of the deformity, or where the constriction was produced by the umbilical cord. Thus it is evident that careful investigation is necessary to avoid classing an instance of congenital want of one or more limbs under a wrong head, the difference between arrest of development and spontaneous amputation being often extremely difficult to determine.

On examination of the most illustrative and authentic cases, I find that only three safe and distinct signs can be considered as proofs of spontaneous amputation: 1. The presence of a scar at the end of the stump, such as is usually seen on the healed end of a limb amputated by the surgeon, the appearance of the remainder of the stump being in accordance. The scar is often found retracted and central, which is owing to the peculiar mode of detachment, the encircling ligature often first dividing the deeper parts, muscles and bones, and lastly the skin. 2. The detection of the cause of the amputation, either on the fœtus or in the afterbirth (ligaments, cicatrices, dermatitis, amnitis). And 3. The discovery of the detached limb among the se-

cundinæ, its size being generally much less than that of the main portion of the limb. The comparatively rare discovery of the two last-named evidences is probably owing to the negligence of the attending midwife in examining the afterbirth. All other signs can only be of value if, when taken in conjunction, they serve to prove one of the above-named corollaries.

To recapitulate, the theories propounded as to the origin and nature of the congenital absence of a portion of a fœtal limb are the following:—

a. Arrest of development (Haller).

b. Gangrene (Chaussier, Richerand, Barkow, &c.).

c. Detachment by means of ligaments (Montgomery, Simonart, &c.);

Detachment by means of amniotic folds (Gurlt, Braun, Jenssen).

d. Constriction in consequence of cicatrices produced by dermatitis (Simonart, Kristeller).

e. Fracture (Simpson, Martin).

f. Arrest of development through cicatrices of inflammatory origin (Virchow).

g. Constriction through the umbilical cord (Montgomery, Simpson, Velpeau, Chailly, Cazeaux).

h. Abnormal shortness of the cord (Bartholinus, Velpeau, Chailly, Cazeaux).

The present case I consider to belong to the second chief class, comprising those instances in which only partial or incomplete division has taken place, and concerning the cause of the deformity to come under subdivision *c*, that is, I believe the fibrous band found stretched across the palm to be the remnant of a ligament, cord or amniotic fold (which, I will not determine) which formerly enveloped the whole metacarpus, and, chiefly constricting the softest parts, viz., the borders of the hand, there became adherent by means of a superficial dermatitis. That the band was not adherent, and that there is no furrow in the middle of the palm is quite natural, the contraction of the borders causing the middle of the hand to form a deep groove, over which the cord stretched. The remainder of the constricting band, not pressing so deeply into the more resistent dorsum of the hand, did not adhere, but gradually became atrophied, was detached and lost amid the secundinæ. G. Braun (*Wien. Zeitschr.*, 1854) even thinks that such detached and atrophied ligatures may disappear (be dissolved) in the amniotic fluid. The nature of this band I will not attempt to determine; however, the microscopical examination showing the presence of fusiform cells and epithelium rather speaks for its amniotic origin. To this opinion I incline as the most probable, notwithstanding the absence of any apparent sign of inflammation or exudation on the internal surface of the amnion; such a sign, however, must generally be more or less minute, and may be easily overlooked or destroyed by the rupture of the membranes.

A cicatricial band caused by dermatitis may, I think, be left completely out of view, there not being the least sign of cicatricial tissue at any spot of the encircling furrow. Besides, it would be difficult to understand how a dermatitis of the palm should be able to form a distinct and continuous furrow around the whole hand.

The band must have been formed at a comparatively late stage of pregnancy, for the constriction was but slight, and the whole hand well shaped and not retarded in its development. The circular impressions on the fingers are probably results of the same process, with the difference that the ligature, being doubtless very thin, did not become adherent, but caused only a slight constriction, was then torn by the movements of the fœtus, gradually detached and lost. The deformity of the left hand, evidently an arrest of development, might seem favorable to the supposition that the abnormity of the right hand is owing to the same cause. Besides the difficulty of explaining the origin of the constricting band, the whole aspect of the hand, its shape and size, refute the idea of arrested development. It is also a well-known fact that irregularities of formation frequently accompany instances of spontaneous amputation, except where the latter is produced by intra-uterine fracture.

A very similar case is reported by Montgomery, in which both hands are constricted by still extant complete ligatures. So far this seat of spontaneous amputation has been rarely witnessed, the separation occurring most frequently in the fingers and toes, then in the forearm and lower part of the leg, and, lastly, in the upper arm and thigh.

I therefore think myself justified in considering this to be a case of partial spontaneous amputation in utero of the metacarpus and the three middle fingers by means of a fibrous band.

To attempt to offer a definite explanation of, or advance a new theory on this question on the strength of this case, would seem rather preposterous. The only object of this paper is to offer a new contribution

to the solution of a problem which, if it have no practical utility, still is of great scientific interest.

THE CAROLINA SISTERS.

By J. B. S. Jackson, M.D., Boston.

The two girls, united by the lower part of their backs, who have been exhibited in various parts of this country and in Europe almost from the time of their birth, are now in this city, and the following notice of them may perhaps interest the readers of the Journal. There are also some important points that have not been referred to in the published reports of them, or that have, I think, been incorrectly stated. Dr. Geo. J. Fisher, of Sing Sing, N. Y., has re-published, in his very complete "Essay on Compound Human Monsters" (Albany, 1866), Prof. Miller's description of them when they were two years old (*Southern Med. and Surg. Journal*, February, 1854), Dr. Ramsbotham's when they were five years old (*Med. Times and Gazette*, Sept. 29, 1855, London), a letter to himself from Prof. Chas. A. Lee, of New York, in 1866, and his own observations during the same year. Dr. F. Minot, also, of this city, saw and examined, *per vaginam*, two united black children, and reported the case to the Society for Medical Improvement in May, 1855. His report was never published, but the Records state, in a line or two, that he found one anus and two urethral orifices. These were probably the same individuals after they had been kidnapped, and when they were on their way to Europe. And, lastly, Sir James Y. Simpson refers to them in a lecture on Viable United Twins, published in the *British Medical Journal*, March 13th, 1869, and to which my attention has been directed by Dr. Parks.

The female attendant, who stated that she had been with them during the last five years, and at different times in former years, was not the show-woman, but appeared to be a perfectly trust-worthy person, and from her I have obtained, on close inquiry, the following facts. She was herself the slave of the gentleman in North Carolina who bought the girls when they were a few weeks old, and about two years afterwards the rest of the family. She, of course, knew them from that time, and subsequently their mother, who was a large, fleshy woman, had had fifteen or sixteen children, and said that her labor, when these united children were born (July 11th, 1851) was as easy as any that she had had —the birth occurring before the arrival of the doctor. Their names being Christina and Millie, and their estimated weight at birth being about 17 lbs., that of C. was estimated at about 12 lbs. M. was so much the smaller of the two that their mother used to say that if it were not for the legs and arms she should say that instead of a second child there was only a "knot" on C.'s back. The union not being strictly back to back, they naturally favored the position to which they inclined; and as this tendency has increased, their mode of progression has come to have more of a side-way direction. The hips are now so far separated upon one side that two fingers can be passed in between them, but upon the other there is only a crease. They feel hunger and thirst, and a call to evacuate the bowels or bladder simultaneously; neither one knowing whether her own organs or her sister's are being evacuated. Prof. Simpson states that when he saw them in 1856 the call to evacuate these organs was not cotemporaneous. The attendant here, however, is quite sure that such is now the case, and that one stream of water only is passed. In regard to this last point, if there are two urethral orifices, as observed by Drs. Minot, Simpson and Ramsbotham, and of course two bladders, it seems hardly possible that these last should be evacuated separately, if the connection between the two organs is such that the call is simultaneous; and, as to the fact, the subjects themselves may be mistaken, as well as the attendant. The connection is through the nervous system, but in the case of the intestines the organs themselves must unite not far above their termination, and this last is so sensitive a part that the call might very well be simultaneous, and it might often if not generally happen that neither individual would know whether the discharge was mainly from her own bowels or her sister's. Menstruation began when they were fourteen years old, and is in every way regular, but with some occasional pain, which is felt by the two. The breasts are well developed, and this is evident. The amount of menstrual fluid discharged at each period, and also the amount of urine that is evacuated, is not greater than it would be in the case of a single individual. Drs. Simpson and Ramsbotham state that there was a single vulva, with two vaginal orifices and two clitorides. That hunger and thirst should be experienced simultaneously when the digestive organs are almost entirely separate, and when the vas-

cular connection must be so trifling, is certainly very remarkable. For some years they lay upon one side, and their heads in consequence became somewhat deformed; but they have since lain upon either side, though of course inclined more towards the back when upon the divergent side; and one may be talking and laughing with those about her whilst the other is sound asleep. Their general health is quite good, and the most severe sickness that they ever had was the fever and ague, when the chills were simultaneous and also the heat. One alone may have a slight headache, as from indigestion; but, if severe, it is felt by both. The effect of a cathartic upon one when given to the other the attendant knows nothing of, as since she has been with them one half of any such medicine has been given to each when required. Their weight within the last month was 170 lbs. M. was very much the smallest in early life, as above stated, and C. could raise her from the ground and walk off with her, but she has not done this for the last year or more, on account of the strain; M. having gained upon her sister, so that now the difference between them is not great. M., however, wears a boot that is one size smaller than C.'s. Having seen the girls several times, and finding that it would be entirely out of the question to get a vaginal examination, I requested the attendant to make one, with instructions; but, intimate as she is with them, she had no better success than myself. She had examined them, however, at some former period, and stated that the united vulvæ were no larger than they would be in a well-formed girl of their age, but that they were fairly beneath the pelvis, so as not to be visible when looked at from the front. There was also one anus, upon one side, and about one and a half inches from the vulvæ.

The above statement having been made by the attendant, the following observations were made by myself. They are quite, though not deeply black, rather short, and have the appearance of robust health. The inclination toward one side is considerable; and that side being called the front, it may be stated that they incline to rest upon the back legs, and I saw them walk upon these whilst they held up the front ones. Like crabs, their walk is rather sideways than forward and back. The feet and legs of C. are of about equal size, and each foot comes quite to the end of her boot; but M.'s front leg is considerably smaller than the other. The fore-legs seem to be shorter than the two others, so that the heels of the first do not touch the floor when they stand squarely upon the last; but this seems to be connected with a strong lateral curvature of the spine, that exists in each of the girls, and that probably results from the constrained and twisted position that they naturally assume; the front hips being considerably higher than the two others. They not merely walk rapidly about the room, but they waltz together, and rather gracefully; and they seem to have very little difficulty in the sitting position. I saw them touch their lips, but they cannot do it as easily, they say, as in former years. The divergence of the hips posteriorly, and the convergence anteriorly, is quite marked through the clothes. The union has generally been said to be by the sacrum; but Prof. Lee has described it as extending to the lumbar vertebræ, and I should fully agree with him. The dress being so arranged that the union could be seen as well as felt, and there being, as usual, very little subcutaneous fat upon the median line, so that the spinous processes were readily felt, it seemed, after observing the position of the lower ribs and the ilia, as if the spinous processes of the third lumbar vertebræ might be in contact; but the deformity from the curvature of the spine is such, that with the imperfect examination that is allowed it is impossible to determine this point satisfactorily. When the lower extremities of either one are touched the other feels it, but she cannot so far locate the sensation as to say whether it is the foot or leg that is touched. There must be an intermingling of the nerves of sensation at the lowest part of the spine; and this would probably be explained, as Dr. Wyman suggests, by the fact that these nerves arise from the back of the spinal marrow, and might naturally blend, as the subjects are united by the backs; but the motor nerves, arising from the anterior columns, are not so connected that one of them can move the limbs of the other. Their lips are of the thickest African cast, but their expression and conversation are cheerful, their manners agreeable, their frontal development good, and they show as much intelligence as we should expect to find in most girls of their age; their characters having probably much improved since they were seen by Prof. Simpson. At one of my visits I found them at work, and M. was sewing with her left hand; her habit, formerly, having been to use this hand much more than she does at present. Their voices are harmonious, and they sing with fine effect. In consequence of the lateral

inclination of their spines the chests are very considerably deformed; the backs of each toward the front, or converging side, being perhaps flattened, and the ribs and scapulæ of the two other backs very prominent. The front of each of their chests is short in the vertical diameter, rounded and prominent. The heart of M. has been positively stated to be in the right side of the chest; but I could not feel persuaded of this, though there is evidently some displacement. This last may, perhaps, be owing to the distortion of the chest, though nothing of the kind is observed in C. Vesicular respiration was heard upon each side of the sternum; and the second sound of the heart was about as loud upon the right side of the chest as upon the left, but it was loudest over the sternum. The impulse could not be felt. Feeling this doubt as to the position of the organ, I suggested to Dr. Bowditch to visit the girls and to examine this point, and he writes to me as follows:—

"Millie was unwilling to remove her dress.

"As far as I could examine her heart it seemed about in the usual place, perhaps a little more towards the centre than usual, but I thought undoubtedly at the left of the sternum."

The pulse of C. was 72, and that of M. rather less.

In the early part of the last century a very similar case occurred in Europe, and is well known to all who have paid any attention to the subject of monstrosities. I refer to the "Hungarian sisters," who lived to the age of 21 years; and, as they are so generally known by that name, it would seem proper to call the girls here described the "Carolina sisters."

INSENSIBILITY TO PAIN FROM MENTAL CAUSES.

By T. W. Fisher, M.D.

The question of the extent to which mental conditions, and especially insanity, can mask physical suffering, has been lately revived, during an investigation, by a committee of the Legislature, into the causes of the death of James Parks, at the Taunton Lunatic Hospital. This patient was arrested by the police of Cambridge while dashing about the streets, on horseback, under acute maniacal excitement. He was heard to ride into a fence, it being dark at the time, and was afterwards arrested, receiving several severe blows on the head. At the hospital, during a struggle with the attendants, whom he assaulted, he received further injury, and died the day after his admission. At the autopsy fourteen ribs were found broken, a part of them on each side of the chest anteriorly, and one lung was found punctured and collapsed. The evidence established, indirectly, the existence of injury to the chest before admission, a large ecchymosis having been noticed over the seat of fracture, on one side, but no expression of pain on the part of the patient led to an examination for deeper injuries. In the struggle at the hospital the lung was punctured, as evinced by a change in respiration with emphysema, and more ribs were probably broken.

The medical opinions concerning the mechanical disability arising from fractures of the ribs, the rate of progress in infiltration of tissues, and other incidental questions, were interesting, but need not be detailed here. In regard to the masking of pain by insanity, Dr. Morrill Wyman, of Cambridge, who saw Parks soon after the arrest, said he did not think his mental condition could have concealed the pain he must have felt from such numerous fractures, and during such movements of the arms as were made in his presence.

Dr. Walker, of the Boston Lunatic Hospital, testified to the fact that insanity, in all its forms, may mask the pain from disease or injury of the most aggravated character, and gave instances occurring in his own experience. He did not consider it improbable that Parks's state of mind might have prevented any suffering from injuries as severe as those disclosed at the autopsy, and under such exertions as he is testified to have made. He further stated, that an insane man might complain of visible and prominent injuries, like those of the scalp, without calling attention to others more deeply seated and severe.

Dr. Fisher stated that immunity from pain, by reason of mental disease in most of its forms, was a well-known fact and matter of record. That cases of more extensive fractures of the ribs than the present, without evidence of pain, had been reported, and that this class of fractures was peculiarly liable to be concealed. That the movements testified to in this case, such as raising a window, were not the most difficult to perform under the circumstances, and called attention to the fact that after the injuries were known to exist, Parks raised himself in bed with his hands behind him—a movement involving the pectoral muscles.

Dr. Shaw, of the Massachusetts General Hospital, related instances of patients who, in delirium, had thrown their wounded limbs against the wall, or jumped from bed, and walked on recent stumps. Also cases when, in the presence of other injuries, the patients not being insane, fractures of the ribs had been overlooked.

Dr. Choate, of the Taunton Hospital, presented records of parallel cases occurring in New York, when, under daily surgical supervision for weeks, including an operation in presence of a class of students, extensive fractures of the ribs were undiscovered.

The testimony of Dr. Tyler, of the McLean Asylum, was not heard by the writer, but is understood to have been of similar purport.

Probably no psychological fact is capable of such complete and startling illustration, as that of the endurance, or the loss of sense of pain, under certain mental conditions. From the time of Hippocrates, who first recorded insensibility to pain, as a symptom of insanity, to the present, medical literature contains frequent examples of it. The attempt has even been made to show the existence of this symptom in the majority of cases of insanity. It is a fact that such insensibility occurs in some degree in most forms of insanity—and from various causes, which it is important to analyze.

For instance, there may be actual paralysis of sensation, a condition of true anæsthesia; or, on the contrary, sensation may be perfect, and the seeming insensibility be due to a careful repression of the signs of pain for a specific purpose, as in some cases of hysterical paralysis. Between these extremes come various degrees of indifference to pain, the result of mental pre-occupation in some morbid train of thought. There may also be the indifference of frenzy, the current of emotion admitting of no interruption, and the indifference of stupidity and dementia. The pain may be felt, but misinterpreted, by the diseased mind, and referred to some fanciful source, thereby being discredited.

In these and other ways, the exhibition of suffering among the insane is to a large extent prevented, and the utmost watchfulness is required on the part of medical attendants to discover the actual condition of parts and organs, of which, among the sane, the sense of pain is such a valuable index. Painful diseases, such as peritonitis and prostatic enlargement, may run their course with few of the rational signs. The pain from distention of the bladder often fails to give rise to any signs of suffering referable to that organ. Phthisis is quite uniformly a masked disease among the insane, being unaccompanied from the first to the last by pain, cough or sputa. The above remarks do not admit of a sweeping application, since many of the insane feel more acutely than others.

The most common cause of actual anæsthesia is general paralysis. In the early stages of this disease, before the loss of motion is very observable, it may be well marked. It renders the patient regardless of exposure to extreme cold, to burns, injuries, and minor surgical operations. If under the influence of delusion at this time, self-mutilation may be deliberately inflicted. Pulling out of the intestines, gouging out the eyes, and sawing off the penis with a board, are a few of the eccentricities in which such patients may indulge.

Anæsthesia may likewise exist in melancholia, being shown by indifference to cold, to the discomfort of lying naked on the floor, or of standing motionless from morning to night. Melancholiacs often resort to painful methods of suicide. Forbes Winslow relates a case of experimental suicide, in which the patient tried various plans, up to the point of unconsciousness, with the humane intention of recommending the best to his fellow sufferers! In dementia, the indifference to pain depends upon the extent of the mental obscuration. In mania, the condition bears less resemblance to anæsthesia; or if it is of this nature, the state is transitory and fluctuating, according to the rate of the cerebral currents. Motory activity, however, is not always a safe index to the rate of psychical processes. The maniac may be outwardly calm, and perhaps coherent, at the moment when his mind is at its intensest point of activity. In this state there is no room for the consciousness of pain, and the patient may disregard the existence of severe injuries with a *sang froid* truly deceptive. I have seen such an one chew the burning ends of a card of matches with apparent relish.

This indifference to suffering is not, however, solely characteristic of insanity, since it is but an exaggeration of conditions not regarded as altogether abnormal. I need only mention the convulsionaires of St. Médard, victims of one of those moral epidemics in which religious ecstasy produces an abolition of pain, with a wonderful exaltation of the power of endurance. The Book of

Martyrs furnishes many examples of a similar kind. A like condition obtains among the heathen and savages who use self-torture as a propitiatory exercise. There is a state of anæsthesia resulting from extreme peril, in some instances, of which Dr. Livingstone's account of his sensations while in the jaws of a lion is an instance. But war furnishes, on a large scale, the best examples of endurance and disregard of suffering.

The emotions developed during a battle are various. In a few constitutionally timid natures, they are of the most distressing character. Fear is imprinted on every feature, and every limb is a tell-tale. The term *demoralized* is strictly and scientifically applicable to such cases. In one instance under my own observation, an attack of mania was induced. A soldier, under unexpected fire for the first time, suddenly clubbed his musket and struck out furiously among his comrades, yelling all the while as if in the midst of the enemy. On being led out of the fight, the delirium subsided, leaving a condition of stupor which lasted several hours. He subsequently became a good soldier. In the same fight a young man became so exhilarated as to offer to stand guard all night, on account of his sleeplessness, the rest of the regiment being completely exhausted. He has since died of apoplexy.

In the mass, the excitement does not exceed the limits of self-control, but serves to keep each man up to his duty, and makes all more or less careless of danger, and indifferent to ordinary wounds. This is especially the case if the fight goes well. For instance, a soldier lies in an ambulance, with a bullet among the bones of the tarsus, shouting, "Dig away, Doctor, and damn the pain! we've licked 'em!" Or a delicate drummer boy, with a large flap of integument torn from his knee, requiring tedious dressing and many stitches, asks meanwhile for a pencil, to make notes in his diary of the occurrence! On the other hand, a fellow, with all the signs of cowardice, comes up with the right fore-finger shot off, and an empty gun-barrel. A self-inflicted wound is diagnosed, and amputation at the joint proceeds, amid contortions and frantic exclamations of pain, while all around lie the severely wounded, with scarce a groan among them.

Such strong contrasts illustrate forcibly the influence of mental conditions upon sensibility to pain. It is a common error to enlarge the sphere of consciousness beyond its true limits. Consciousness and cerebral activity are by no means co-extensive. Not only do organic processes and automatic actions go on unperceived, but unconscious trains of associated thought occupy the mind largely, awake as well as asleep. A certain degree of intensity in a nervous impulse seems necessary to a sense of consciousness, though of the laws which govern this matter we know little, and have slight control. Ideas and sensations rise into consciousness apparently at random, when not evoked by a direct effort of the will, or forced on the mind by their intensity. Pain is a sensation which in ordinary states has an element of intensity sufficient to excite the attention powerfully, but in abnormal conditions the brain seems under the absorbing control of centric agencies. Whatever these agencies are, whether changes in the circulation, or the cell nutrition, or the nervous currents, the results resemble, to some extent, artificial anæsthesia. Nature, however, more skilful than man, applies her anæsthetics so delicately as to produce more exact localizations of effect.

In the more permanent anæsthesia of insanity, we look for more visible and lasting changes of structure, such as atrophy of the nervous elements, abnormal growth of the connective tissue, or varicosity of the capillaries.

The subject, so hastily sketched, presents a field for more careful observation, and its phenomena should be fruitful of something besides incredulity or surprise.

A COMBINED WIRE SPECULUM AND RETRACTOR.

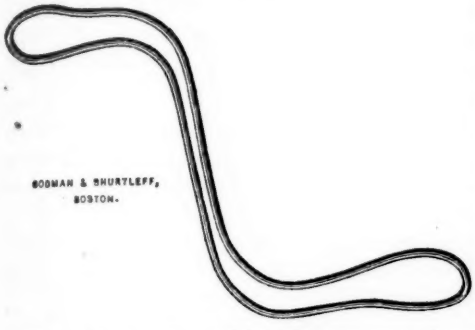
By Francis H. Brown, M.D., Boston.

A few weeks ago, I was asked by Dr. Waterman to assist him in a vaginal operation, which required the passage to be fully shown, and which promised to be, and, indeed, was quite protracted in its performance. I took occasion to suggest employing a simple wire speculum, which would answer the additional purpose of a retractor, in place of the Sims and Boston (Storer) specula and the copper spatulæ he was proposing to use. He carried out my idea by bending a stout wire on itself, and then shaping both folds nearly into the form of the letter S; and thus got a very excellent and serviceable instrument.* Afterward I made, more carefully and after some experi-

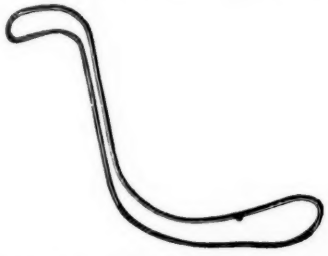
* For sundry suggestions regarding this retractor, I am indebted to Dr. Waterman, and a considerable part of the merit of the instrument—if merit exists—is due to that gentleman.

ments, the two forms of the instrument which I now describe.*

They are made of iron wire, joined by hard solder and then nickelized; the larger the size of a No. — catheter (French), the other of No. —. The general description of the larger instrument would be that it is a *skeleton* Sims's speculum; very nearly of the same size, and with the same curves; the two handles turning in opposite, instead of the same direction; and one blade somewhat shorter and narrower than the other. The instrument made from the smaller wire is, generally, smaller, and has one of its ends, proportionally, shorter; otherwise its general shape is the same.



The objects for which I propose these instruments, are the following:—Singly, the larger instrument has been found well adapted to take the place of Sims's speculum. It displays the vagina equally well; it is much lighter; equally strong; and no less easy of application. The two together, as retractors or in place of the copper spatulæ, have served well to dilate the vagina, and bring into view every part of its wall, up to the cervix. Of course, this use presupposes one or more assistants; but, when



so employed and guided by the eye of competent helpers, they fill, more satisfactorily than the bivalve and multivalve specula, the place of these instruments, while they are more fully out of the way of the operator. They have, moreover, the additional advantage over the common copper spatulæ, that they have no sharp edges.

Singly the instrument may, not infrequently, be used to hold and render tense the vagina, and, by its fenestrum, bring into clear view and make prominent an abscess or small tumor, an ulcer or fistula, on which one desires to operate, much as the fingers of the operator or assistant would do on the external surface of the body. It may, not inaptly, be employed after rupture of the sphincter ani for the display and operations on internal hæmorrhoids and ulcers of the rectum, or the internal opening of a fistula in ano. The retractor will be found a useful aid in searching, by means of its fenestrum, for vesico-vaginal fistulæ—which, as is known, sometimes baffle the search of the surgeon for a considerable time.

The smaller instruments are to be used especially as retractors, to hold aside the edges of wounds during various operations for the removal of tumors, ligature of arteries, &c., and to keep out of danger arteries, veins, nerves, and similar important parts. The smaller retractor answers the purpose of the wire tongue depressor, devised by Dr. Allen, of Cambridge, and serves as an admirable retractor to draw aside the cheek or lips in various operations about the mouth and maxillary bones.

A still farther advantage of these instruments is their very trifling expense; the whole set of four being furnished by our instrument makers at a sixth part the price charged for any of the elaborate forms of specula.

* In photographing from the instrument to the block, it was necessary to turn the retractor on its long axis, in order to show its fenestrated character; as a consequence, the electograph shows less curvature in the handle or upright portion than actually exists; in fact, it very closely resembles the same part in the Sims's speculum.

Medical and Surgical Journal.

BOSTON: THURSDAY, JULY 8, 1869.

M. CLAUDE BERNARD ON THE ACTION OF ANÆSTHETICS.

FROM a lecture of M. Claude Bernard on the action of anæsthetics—published in the *Gazette Hebdomadaire*—we translate the following statements.

Ether and chloroform, which put the animal in repose by suspending the action of the nerves of sensation, have also a direct action on certain orders of movement inde-

pendent of the nervous system. Vibratile cilia exposed to anæsthetic vapors cease to perform their function; and the same is the case with the spermatozoa. This influence of anæsthetics is not permanent, the cilia and the zoösperms recovering their properties after a little while. * *

The absorption of anæsthetics should be in excess of their elimination. For the production of anæsthesia, it is requisite that the anæsthetic should, 1st, reach the arterial blood; and, 2dly, should be in excess. * * * *

When animals are made to inspire rapidly a considerable quantity of chloroform, the arterial blood becomes almost instantaneously black. M. Claude Bernard says that in this condition there is suffocative anæsthesia. When, on the contrary, the anæsthesia is produced by slow and gradual inhalations, the blood remains red, and yet the animal becomes no less insensible. * *

Now, to determine the anatomical element on which anæsthetic agents act—In the first place, the perturbation produced in anæsthesia must be quite profound, since violent poisons do not kill the animal experimented on in that state. Thus prussic acid—the rapidity with which it causes death is well known—injected subcutaneously, leaves a rabbit unharmed during the anæsthetic sleep: thus, also, the spinal marrow may be to a great extent destroyed without the anæsthetized animal seeming to be affected by this mutilation, to which it would necessarily succumb in the waking state. We may say, consequently, that the animal is lowered in the scale of being (*amoinobri*) during the anæsthetic sleep; bearing mutilations, as the inferior animals bear them, he has taken a step downward in the hierarchy of living beings. We shall shortly see, in fact, that it is precisely that nervous element, which constitutes its superiority, which has been abolished [for the time] by the anæsthetic.

M. Bernard then goes on to cite a series of experiments, all upon frogs, to prove that it is the action of anæsthetics upon the nervous system which produces the peculiar effects of those agents. The first two of this series of six we now give.

No. 1.—A frog, intact, is plunged into water containing a half-hundredth part of its volume of chloroform. Whether immersed by means of its hind quarters or by the front part of its body, it is rapidly and *in toto* anæsthetized. It is evident, then, that the toxic agent is absorbed by the skin.

No. 2.—The aorta having been tied at the pelvic region, the body is then tightly girdled by the same ligature, a sort of division of the animal into two distinct parts being produced. The sacrum is then removed. Thus the two portions of the frog—the anterior and the posterior—communicate only by the two lumbar nerves. Now when the posterior portion is plunged into the solution of chloroform, no effect is manifested in the anterior or upper part. When, on the contrary, the head is placed in the same liquid, anæsthesia rapidly pervades the entire body. Consequently, it is to be inferred that anæsthetic action takes place from the nervous centre to the periphery by means of the nerves, but not from the periphery to the centre. * * *

M. Bernard takes up the inquiry how far the anæsthetic sleep resembles normal sleep. Divers experimenters have observed in anæsthesia, sometimes anæmia, sometimes hyperæmia of the brain. These contradictory phenomena find their reconciliation in the mode of administering the anæsthetic. We have seen, he says, that in administering the chloroform rapidly (*brusquement*) suffocative anæsthesia is produced; and that state necessarily involves cerebral turgescence. If, on the contrary, the anæsthesia be induced gradually, the supply of blood in the brain is diminished, as happens to any other organ which discontinues its functions. Thus, he remarks, we obtain, in the first case, by the turgescence and the compression produced by the venous blood, an effect analogous to, or identical with, that which in the second case is brought about by the abstraction of blood. [We would ask, with becoming diffidence, if it would not be allowable at least to ascribe the speedy anæsthesia in the one case to the benumbing influence of the chloroform given in large doses and acting directly on

the nervous centre, but aided no doubt by the turgescence produced by the asphyxia; and the gradual anæsthesia in the second case simply to the slowly advancing direct action of the agent, the anæmia following in the wake of that direct action?—Ed.]

After having removed, M. Bernard goes on to say, the top of a rabbit's skull, the meninges being drawn aside, and the brain exposed to the extent of five centimetres, hernia of the cerebral substance is seen to take place every time the animal is excited, to disappear as soon as the excitement is over. When an animal is anæsthetized the same cerebral protrusion is seen to coincide with the first inspirations—i.e., the tendency to hernia is manifest. But as soon as calmness occurs, anæmia is produced, and the cerebral substance settles down within the cranial cavity.

Should anæsthesia be attributed, he now asks, to perturbations of the cerebral circulation? [This involves essentially the same question we put in our preceding brackets.—Ed.] The point, he replies, is not demonstrated. The tangible fact is that these perturbations exist; but the intimate relation of cause and effect is not a necessary inference. What we know for a certainty is, that particles of an anæsthetic agent are introduced into the blood in such a manner as to bathe the nervous centre, and that they produce there a functional arrest in the sensitive cells; also, that a nerve injured (*touché*) at its central extremity dies, while its death is not produced when the peripheral extremity is injured; although *apparent* death is evinced from the periphery to the centre. * * *

Upon the question of the influence of anæsthetics on motory action, M. Bernard exhibits animals anæsthetized in different degrees. In some, sensibility has ceased while reflex movements continue; in others anæsthesia is pushed to the abolition of all movement, there being complete prostration.

Emendations.—We call attention to the emendations of our last editorial. They may be found under the head of "errata and corrections." Possibly our inadvertence as to the language used grew out of the fact that our attention was chiefly occupied with the subject-matter. We take occasion to say that all our statements relative to drugs were subjected to the scrutiny of two of our first druggists, by whom they were verified or corrected.

Remedy for Whooping Cough; Exhalations from Lime which has been used in Purifying Burning Gas.—In our issue for May 13th we quoted from the *Dublin Medical Press and Circular* certain remarks of Oppolzer with reference to the treatment of pertussis. The following is the concluding paragraph of those remarks. "In conclusion, it may be stated that of late many French physicians recommend the exhalations from lime which has been used in purifying burning gas, or, better still, gazéol. Oppolzer has had no experience with these remedies." The day after the publication of this we received from Dr. J. B. S. Jackson a note informing us that a distinguished gentleman of this city had had some remarkable experiences with the remedy mentioned in the caption to this article, and we immediately wrote to that gentleman upon the subject. We received a prompt reply, referring us to his family physician—Dr. George Hayward. Dr. Hayward has now kindly looked up his notes relative to the matter, and sent us the following letter.

We trust some one of our chemists will inform us of what agents the emanations in question are composed; and also that the remedy will be put to the test in the next epidemic of pertussis.

Mr. Editor,—In answer to your inquiries I would state that my attention was first called to the subject by seeing, in the latter part of 1864, in some foreign journal, a statement of the beneficial effects produced on children suffering from whooping cough by causing them to inhale the fumes arising from the lime that had been used to purify illuminating gas.

On Saturday, December 24th, 1864, a patient of mine, a boy aged nine years, who had had whooping cough four weeks, became so ill that I determined to try the experiment of taking him to the Gas Works. From memoranda made for me by his mother, at the time, I find that for a week before this he had coughed very hard, doing so nearly every half hour during the afternoon and evening, and six or eight times during the night, vomiting with almost

every paroxysm; had taken little or no notice of his playthings; was feverish; had but little appetite; had lost flesh and strength; and was generally quite sick.

I found at the South Boston Gas Works, to which we went as being the nearest, that the only way in which the fumes could be thoroughly inhaled was by taking off the cover from an opening over the drain which emptied the vats of the mixture of lime and water, after it was thoroughly saturated with the impurities of the gas, making a tent of large shawls over the opening, and placing the children, well wrapped up, under the tent. By doing this I was able to protect them from the cold, and at the same time cause them to breathe the fumes very thoroughly, for both their clothes and the shawls over them were soon completely saturated with the smell rising through the opening. Having remained under the tent perhaps fifteen minutes, or rather less, the children were taken to a warm room and shortly after carried home.

After coming from the Gas Works the boy coughed but two or three times during the afternoon and evening of Saturday, and only three times during the night, and did not vomit once. Sunday the cough was much lighter and less frequent; he did not vomit any during the day, and was much more playful than he had been for more than a week. Monday, continued better, and coughed much less. Tuesday and Wednesday, not so well, more cough. Thursday went to the Boston Gas Works, after which the paroxysms were less severe, and not so frequent; and, though he occasionally vomited, the cough never was so bad as before he went the first time. Went to the Boston Works again, and although he stayed but a short time, there was evident relief to cough. Four or five days after went to the Cambridge Gas Works, and remained more than half an hour; the place being more sheltered, and the odor from the lime much stronger than at the other works. After this visit the boy was much better; he coughed but twice the following night, and improved so rapidly that it was not thought necessary for him to visit the works again. The sister of this patient had the disorder decidedly, but much less severely, and with less affection of the general health than he had. She went to the Gas Works but twice; after the first visit she did not cough for twenty-four hours, and never again with the same severity as before; after the second visit she had but one paroxysm of coughing.

About this time I pursued the same treatment with three other very well marked, but not so severe cases as the one first mentioned, with good results. Their father writes to me, "The night after their first visit to the Gas Works they had their best sleep for many nights; and after a second visit we considered the disease as substantially broken."

These five cases I reported at a meeting of the Medical Improvement Society; and, as I wished to obtain all the information possible on the subject, I asked any gentleman present who had tried this remedy for whooping cough to state what had been the result of his experience, but as no one replied I presume that none of those present had then tried it.

Since then I have almost always recommended this treatment in whooping cough, and, where it has been fairly tried, it has usually been successful; sometimes so in a very marked degree. I quote some cases from memoranda now before me. In July, 1865, a child but two months old was taken with the disease, whooping unmistakably. He was immediately taken to the Dorchester Gas Works, where the dry purifiers are used. "The child was taken three times within ten days; and we stopped going because the disease had ended. It never ran its course." Three years after, this same child was exposed to, and took, whooping cough again from a servant in the house. He was taken to the Gas Works again, and after two or three visits the disease was again broken up. The same result occurred the same summer in a child fifteen months old who was treated in the same way. In the case of a young infant, by the recommendation of the agent of the Gas Works a portion of lime obtained from the dry purifier was treated with muriatic acid in a closet, by which a good deal of free ammonia was thrown off, with perhaps other productions of the manufacture of gas, and the infant was allowed to remain a few minutes in the closet. This was repeated about a dozen times, the result being that the cough ceased, being apparently broken up by the treatment.

An elderly Englishman, employed at the South Boston Gas Works, told me that years ago, when he was in England, it was a common practice in some of the towns there, where the mixture of lime and water used to purify the gas was drawn off from the vats in open troughs, for the poor women in the neighborhood, whose children had whooping cough, to hold them over these troughs, that they might breathe the fumes which arose as the fluid ran by;

showing that this has evidently been a popular remedy for whooping cough, in some places, for a long time.

Having mentioned a second attack of whooping cough in one of the cases recorded above, I should say that this is the only one which I know of, although some of the patients have since been very much exposed to the disorder.

The Gas Works at Cambridge and Dorchester seem particularly well suited to the purpose proposed; and I ought to state that both at these Works, and at those in South Boston and Boston, every facility was most courteously given for the experiment; and, in some instances, much interest expressed in the result. Yours truly,

GEO. HAYWARD.

EXTENSIVE CONGENITAL DISCOLORATION OF THE SURFACE OF THE BODY WITH DEVELOPMENT OF HAIR. *Mr. Editor,*—There was recently in the "Mexican Exhibition," now in this city, a bright, pretty little Mexican girl, six years old, the whole upper half of whose body was deeply discolored, with fine, soft hair over a large part of the affected surface and quite a long and thick growth of hair along the outer part of one arm, and just above the angle of the lower jaw upon one side. It was not the intense brown discoloration that existed in the case reported in the JOURNAL two or three years ago by Dr. Arnold of Roxbury, and in which case there was no development of hair; and neither was it properly black, though it perhaps was so in some parts. It might generally be said to be of a very dark steel-gray color. The discoloration extended down to about the elbows and upwards over the back of the head. There were also numerous small, defined, circular, blackish spots scattered over the extremities. The child has now left the city. *

Boston, June 8th, 1869.

MR. EDITOR,—A young woman lately came to me for medical advice, who "had suffered many things"—not of "many physicians"—but from many quacks. Her last experience—and the one which cured her of the quacks, although not of her disease—was with a "*clairvoyante.*" The following choice specimen of charlatanry I send you in its own elegant English, copied, *verbatim et literatim*, from the original document left with me by the patient.

Yours truly, WM. W. MORLAND.

"———— ————, Jan. 31d 1869.

"MISS ————. At the request of Mrs. ———— We have taken your hair to examine, as she could not attend to it by sickness in her family, her Husban and Daughter were both takeen sick, and we were call there to attend them and she gave us the hair, and requested us to examine it, We find on examination of your hair that there is a good deal of humor in the head and round the secretion of the throat, there is humor on the nerve of the ear that conveys the sound from the Drum of the ear to the brain causes those noises, and all other bad feelings in your head, you have catarrhal trouble, but that is not occasion of Phelm in the stomach, there is canker all about the throat Lungs & Stomach, the coating on the Liver is very thick, it is very inactive, the Kidneys do not do there office as they ought to, the oil of the blood is watery, the midriff dose not assist the Lunges, the bowels are very inactive state at times, We think the Povity of the blood causes very many pains and aches about you, your blood has commenced to change and you are all riled up, it turnes the Middle of march, We would not advise you to take any more of the snuff at Present, We will Leave the head as it is and doctor the blood whitch will be the surest way to assist you. We would rectermend the following things for a syrup,"

This delicious composition breaks off abruptly here, the patient having torn off the prescription of "things for a syrup," at the time she received the letter. Mr. Editor, isn't it almost time to emigrate?

W. W. M.

TO "SUBSCRIBER."—In Johnson's Dictionary (A.D. 1838) the *feudal* employment of the word in question is so described as to explain the now current popular use of it. We do not claim authoritative usage for our application of what has become almost a "slang" term; nor did we intend elegant writing in the connection where we put it.

VERMONT MEDICAL SOCIETY—SEMI-ANNUAL SESSION. (Reported by L. C. BUTLER, M.D., Secretary).—The Vermont Medical Society held its semi-annual session for 1869 at Brandon, June 2 and 3. The President being absent, Dr. E. D. Warner, of New Haven, was elected President *pro tem.* Dr. Joseph Bates was present as a delegate from the Medical Society of New York, and Dr. S. W. Butler, editor of the *Medical and Surgical Reporter*, Philadelphia, both of whom addressed the society.

Drs. F. W. Page, of Brandon, L. H. Hemenway, of Manchester, E. P. Squires,

of Shoreham, and T. J. Ketchum, of Pittsford, were elected members of the Society upon recommendation of the Board of Councillors.

The sessions of the society were mostly occupied in the presentation of cases in practice and in informal discussion of them.

Dr. Cushman, of Orwell, presented a written report of cases of disease of the *ileo-cœcal region*, occurring under his own observation, which gave rise to an interesting discussion, mainly upon the proper use of cathartics in such cases. Dr. Brush would avoid cathartics, and would follow an emollient, expectant treatment, as opiates and alteratives. Dr. Woodward thought cathartics should not be discarded utterly in such cases, for he had known large quantities of worms to be carried away by them, and the patient thereby at once relieved from imminent danger. He mentioned an autopsy attended by him in which a tumor, similar to that mentioned by Dr. Cushman, made up of worms knotted together, was found in the ileo-cœcal region, and was the evident cause of death. None of the speakers would proscribe cathartics, but would advise their cautious use.

Dr. Warner, changing the subject of discussion, desired the advice of the society upon a case of ununited fracture, which he presented somewhat in detail.

Dr. Woodward replied by relating a case in which he had operated unsuccessfully in the ordinary method, but in which he desired to operate again in the following manner, which was original with himself. Having first prepared the surfaces in the usual manner, he would bore each extremity of the bone in an oblique direction and insert styles, the extremities of which being pierced, he would thread with silver wires and bind them together so as to make them tense. The surfaces thus being brought in apposition and retained, would not fail to unite.

Dr Page presented an interesting case of *non-malignant abscess of the brain*.

Dr. Butler read a paper on the statistics of fever and consumption in the State, in which allusion was made to the theory of Dr. Bowditch, of Boston, in relation to *soil moisture* as a cause of the prevalence of consumption in New England. Remarks were made upon the subject by Drs. Fassett, Allen, Brush and Butler, resulting in the adoption of a resolution appointing a committee of one from each county in the State, to investigate certain questions upon the subject, to be prepared by the secretary. These inquiries are to be directed to the history, topography of locality, as to dryness or moisture of soil, &c., of every case of consumption occurring within the knowledge of each physician in the State. The committee was constituted as follows: Drs. M. H. Eddy; H. D. Holton; J. S. Richmond; E. F. Upham; G. B. Bullard; S. R. Corey; J. B. Morgan; O. H. Fassett; A. C. Welch; J. E. Macomber; A. T. Woodward; E. N. S. Morgan; M. J. Hyde.

The subject of the use of Anæsthetics in Obstetrics was introduced by Dr. O. F. Fassett, of St. Albans, and elicited considerable discussion, developing quite a difference of opinion among the members of the society in regard to the propriety of their use. The subject was referred to Dr. Fassett to report upon at the annual session in October next.

Dr. Brush presented a paper on the Epidemics of Lamoille County.

The Board of Councillors reported the decease of Drs. S. R. Day, of St. Albans, George L. Ames, of Manchester, S. S. Butler, of Berkshire, and Horace Powers, of Morristown; and appointed Drs. Branch, Hemenway, Hutchinson, and Sutton, to present obituary notices of each respectively at the annual meeting of the Society in October next.

The attendance upon the sessions was not large, but the profession was represented by some of its ablest and most prominent men, more of whom will doubtless be present at the annual meeting in October.

The New Hampshire Medical Society.—The New Hampshire Medical Society held its seventy-ninth annual meeting, in Manchester, June 15th and 16th. It was called to order in the City Hall on the 15th, at eleven o'clock, A. M., by the President, Dr. Levi G. Hill, of Dover.

The morning session was mainly taken up with business matters. The President's address was delivered at twelve o'clock. It was an able and interesting production, receiving the marked attention of all the Fellows present.

In the afternoon, reports were read from different committees. A very interesting paper was read by Dr. W. D. Buck, of Manchester, the orator for 1869, upon the subject of Medial Education and Progress. This paper was keen, learned and eloquent, well sustaining the high reputation of its distinguished author.

Dr. L. B. How, of Manchester, made an elaborate and highly interesting report on Surgery, which met with marked acceptance from all present. At four o'clock, P.M.

an eulogy on the late Dr. Reuben D. Mussey was delivered by Dr. A. B. Crosby, of the Dartmouth Medical School, of which Dr. Mussey was for a long time a distinguished Professor. This address was a very touching and eloquent tribute to the worth and ability of this world-renowned surgeon.

An evening session was held, the time of which was taken up with discussions on miscellaneous medical subjects, of a highly practical as well as interesting character.

Officers elected for the present year:—President, W. W. Brown, of Manchester; Vice-President, W. H. H. Mason, of Moultonborough; Secretary, G. P. Conn, of Concord; Treasurer, Thomas Wheat, of Manchester.

The session on the morning of the 16th, was almost entirely of a business character. M. R. Holbrook, M.D., a delegate from the New York Medical Society was elected an honorary member of the Society. The committee appointed to investigate the charges against Dr. S. B. Kelley, of Franklin, for open and persistent violation of the Code of Ethics which are adopted by the American Medical Association and the different State Societies, reported the charges were fully sustained and a resolution was unanimously passed expelling Dr. K. from the Society.

This annual meeting has been of a very profitable and gratifying character. The attendance of members has been excellent, and delegates were present from New York, Massachusetts and Rhode Island. The able papers read, the rare cases reported and the discussions thereon, cannot fail to be conducive to the advancement to the profession, and therefore to the public benefit.

The eightieth annual meeting will be held on the third Tuesday of June, 1870.

Harvard Medical School.—The following is a list of the gentlemen who received their medical degrees on the 1st inst., with the subjects of their dissertations:—

Bell, George, Halifax, N. S., *Diet.*

Borden, Henry Francis, North Bridgewater, *Myopia.*

Carvill, Alphonso Holland, Lewiston, Me., *Acute Articular Rheumatism.*

Elliot, Daniel Mitchel Moore, Pembroke, N. H., *Acute Rheumatism.*

Fichtenkam, Harry Lamartine, St. Louis, Mo., *Procreation.*

Haskell, William Abraham, Illinois, *Lithuria.*

Hatton, George Eversdyke, Dedham, *Value of the Microscope in the study of Medicine.*

Hooper, Henry, Jr., Marblehead, *Visceral Lesions in Syphilis.*

James, William, Cambridge, *Physiological Effects of Cold.*

Jordan, Francis Gilbert, St. John, N. B., *Croup.*

Kent, Barker Brooks, Jr., So. Boston, *Epilepsy.*

Mead, John Ames, Lowell, *Scarlatina.*

Morrill, Ferdinand Gordon, Boston, *Exstrophy of the Bladder.*

Putnam, Charles Pickering, Boston, *Fatty Degeneration of the Heart.*

Quigley, Wentworth Henry, Boston, *Diagnosis.*

Shattuck, George Brune, Boston, *Cock's Operation.*

Smith, Ira Sinclair, New Haven, *Ruptured Perinœum.*

Stone, William Newcomb, Wellfleet, *Acute Dysentery.*

Whittier, Edward Newton, Gorham, Me., *Intermittent Fever.*

In a leading article paying an earnest tribute to the memory of Dr. Alden March, of Albany, the *Albany Even. Journal* says:—

His death, in the full vigor of mental and physical activity and usefulness, will leave a void in this city and in the profession, that will be most deeply felt and deplored. Dr. March was one of the most remarkable and gifted men of his time. No medical man in this country was more widely known, or more highly respected and esteemed.

In a pamphlet on "Physical Culture in Amherst College," by Nathan Allen, M.D., we find these statements:—

1st. There has been a decided improvement in the very countenances and general physique of students. Instead of the pale, sickly and sallow complexion once very commonly seen, with an occasional lean, care-worn and haggard look, we now witness very generally, fresh, ruddy, and healthy countenances, indicative of a higher degree of vitality, and that the vital currents, enriched by nutrition and oxygen, have a free and equal circulation throughout the whole system. This change is so marked as to attract the attention of the casual observer, and has been commented upon by those formerly attending Commencements or other public occasions here, as exhibiting a striking difference between the personal appearance of students at those times, and that at the present day. * * *

2d. In the use of the limbs and the body —in the physical movements and conduct of students generally, there has been, we think, decided improvement. * * *

5th. A comparison of the present health of students with what it was ten or fifteen years ago, shows a surprising improvement. It is rare now for any student to break down suddenly in his health, or to be compelled to leave college on this account. In 1855–6–7 and 8 such cases were common, as may be seen by referring to the statements of President Stearns in the opening of this paper; and the truth of the statements is moreover confirmed by others personally conversant here for twenty or thirty years. * * *

7th. But the most marked evidence of improved health is found in the diminished sickness of every class each year after entering college. * * *

Quetelet, who has devoted more attention to this subject than any other writer, gives the average weight of an adult male 136.993 pounds, and the average height 5.333 feet.

Dr. Gould, who examined a large number of students in the Junior and Senior classes at Harvard University and Yale College, together with some members of the professional schools, reports their average height 5.666 feet, and average weight 139.700 pounds. A. Maclaren, who has charge of the Gymnasium connected with the Oxford University, England, reports of the first one hundred names on his book as they arrived at the University, their average height 5.825 feet, and average weight 132.970 pounds.

A careful inspection of the table giving the vital statistics of each class as it entered Amherst College, and then in its senior year, shows a decided enlargement of the arm at both points of measurement, and also of the girth of the chest, together with a marked increase in the capacity and power of the lungs. It is surprising what a change in several of these particulars some individuals have undergone in their college course.

The exercises in the Gymnasium at Amherst College are subjected to strict regulations, under the supervision of a professor.

Hay-Fever Caused by Vibriones. — In *Virchow's Archiv* (Bd. 46, H. 1 and 2, 1869) a single, perhaps in some respects unique case is described. It deserves attention from the circumstance, that it is reported by Helmholz, as it occurred in his own person. He says that since 1847, he has been attacked every year, at some time between May 20th and the end of June, with a catarrh of the upper air-passages. These attacks increase rapidly in severity; violent sneezing comes on, with secretion of a thin, very irritating fluid; in a few hours there is a painful inflammation of the nose, both externally and internally; then fever, violent headache, and great prostration. This train of symptoms is sure to follow if he is exposed to the sun and heat, and is equally certain to disappear in a short time if he withdraws himself from such exposure. At the approach of cold weather these catarrhs cease. He has otherwise very little tendency to catarrhs or colds.

For five years past, at the season indicated, and only then, he has regularly succeeded in finding vibrios in his nasal secretions. They are only discernible with the immersion-lense of a very good Hartnak's. The single joints (Glieder), commonly isolated, are characterized by containing four granules in a row; each two granules being more closely connected, pair-wise, and the combined length equalling 0.004mm. The joints are also found united in rows, or in series of branches. As they are seen only in the secretion which is expelled by a violent sneeze and not in that which trickles gradually forth, he concludes that they are probably situated in the adjoining cavities and recesses of the nose.

On reading Binz's account of the poisonous effect of quinine upon infusoria, he determined to try it in his own case. He took a saturated neutral solution of quiniæ sulph. in water = 1 : 740. This excites a moderate sensation of burning in the nasal mucous membrane. Lying upon his back, he dropped 4 centim. of the solution, by a pencil, into each nostril; moving his head meanwhile in all directions, to bring the fluid thoroughly into contact with the parts, until he felt it reach the œsophagus. Relief was immediate. He was able, for some hours, freely to expose himself to the heat of the sun. Three applications a day sufficed to keep him free from the catarrh, under circumstances the most unfavorable. The vibriones, also, were no longer to be found.

The experiment was made in 1867; and was repeated at the first recurrence of the attack in May, 1868, preventing the further development of the attack for that year.

D. F. L.

HEART DISEASE AND THE TURKISH BATH.—Another death has taken place in the Turkish bath at Cork, and it has again raised the question as to how far it is secure or judicious for cardiac patients to undergo the violent variations of temperature which the bath involves. It appeared from the evidence that for the previous week, the deceased's appetite had somewhat fallen away and he was not in strong health, though he did not complain. He went to the bath between seven and eight o'clock, was there about three-quarters of an hour, there being other persons in the same room (the auditorium, or intermediate apartment) at the time. Deceased was on a couch when it was noticed that he breathed heavily, and that he was in a fainting state. Assistance was called, and the deceased was removed at once to the outer or cooling room, and restoratives were applied. Dr. Skinkwin was sent for and came immediately, but the deceased had expired before his arrival. In the doctor's opinion (without having made a *post-mortem* examination) the deceased was a man of weak heart and had died from syncope. In reply to the Coroner, Dr. Shinkwin gave it as his opinion that the Turkish Bath was not fit for a person in deceased's condition—with a weak heart. Dr. Barter gave it as his opinion that the bath was beneficial for persons with weak hearts, and said he had several patients in that condition at his establishment at Blarney who took the bath twice a day with manifest advantage. The jury returned a verdict to the following effect:—"That death was caused, as they believed, by syncope, his illness lasting about an hour; and that every attention was paid to the deceased while at the bath."

It was obviously not the function of the jury to declare whether or not persons suffering from heart disease might safely take the bath, but it is nevertheless a question which must be answered by those who say that they may. Without pledging ourselves to a verdict, we must say that the feeling of the profession is greatly against the use of the bath by such persons, and all our present knowledge on the subject is against subjecting them to the danger.

It is, indeed, a great responsibility for those who advise the use of the bath, and it would be well if they could place before the profession some of the arguments which they consider justify them in giving the advice.—*Medical Press and Circular.*

The degree of M.D. was confirmed upon 31 gentlemen, at Detroit Med. College, recently.

NEW METHOD OF TREATING THE PEDICLE IN OVARIOTOMY.—(Extract from an article by J. F. MINER, M.D., in the *Buffalo Med. and Surg. Journal.*) I have proposed for myself, and desire to suggest to others, a plan of separating the tumor from its attachments to the pedicle which appears to my mind as feasible, at least in some instances, and, where practicable, as having decided advantages. A few months since I was invited to remove an immense ovarian tumor occurring in the person of Mrs. Foster, of Cattaraugus county, N. Y. It was of years standing, had been repeatedly tapped, but at length the contents proved too thick to be drawn through the largest size canula, and the distress becoming too great for endurance, any operation which would end it, whatever might be the result, was gladly accepted. The tumor was multilocular, very large, weighing, as near as could be ascertained, between seventy-five and one hundred pounds. It was attached throughout its entire circumference to the omentum, intestines, walls of the abdomen, and all other parts in which it came in contact. These attachments were not so firm but that they could be broken up, and with great care the tumor was separated from the surrounding parts until the pedicle was reached. The process of enucleation had been carried on so extensively and successfully that encouragement was afforded for continued trial; the pedicle was large and extended over a wide surface, but by gentle and patient effort it was separated from its entire attachment to the tumor, and the immense growth removed without the ligation of a single vessel. The terminal branches of the vessels of the pedicle gave out no more blood than issued from the vessels of the attachment elsewhere. All hæmorrhage soon ceased, and the incision was closed by interrupted suture.

The success of this procedure was complete, and the patient continued for more than two weeks without an untoward symptom, and her recovery seemed almost certain. She then commenced to lose her relish for food, grew weak and desponding, and died from exhaustion on the twenty-first day after the operation. This fatal termination detracted nothing from the success of this mode of treating the pedicle; indeed, so remarkable was the size and attachment of the tumor that any attempt at recovery is surprising, and yet the patient continued to improve long enough to show that the operation was at least in her case unobjectionable.

Medical Miscellany.

Mr. Editor,—A note from Dr. Snow, of Providence, in your issue of June 24th, states that the estimated population of New York (1,100,000), and that of Philadelphia (800,000), as given in the last report [of the City Registrar of Boston], is incorrect—that those "figures are much higher than were ever claimed in those cities, and higher than the truth—very much so." * * I have certainly seen those identical figures recently published, without any doubt expressed of their correctness. Besides, the estimate of the population of New York was furnished me by Dr. Elisha Harris, who may be supposed to be tolerably acquainted with the matter; and that of Philadelphia by Mr. George E. Chambers, Chief Registration Clerk in the Bureau of Statistics of that city. * * *

* * * [By taking] the U. S. Census as his guide, I think [Dr. S.] would have found that not only were the estimates in question not "higher than the truth," but that they are *probably* below the truth. As proof:—In 1840, the population of New York was 312,710; and in 1850, 515,547, showing an increase during the decennial period of 64·86 per cent. In 1860 the population was 805,658, exhibiting an increase during a similar period of 56·27 per cent. Now, if the population in 1870 were estimated at 1,200,000, instead of 1,100,000 in 1868, the increase would be only 49 per cent., allowing a considerable reduction from the result of the preceding decennial period.

The population of Philadelphia in 1840 was 258,037; and in 1850 it was 408,762, showing an increase of 58·41 per cent. In 1860, with a population of 565,529, the increase was only 38·35 per cent. If the population was 800,000 in 1868, as given in the estimate disputed, the increase during the eight years would be 41·28 per cent., considerably higher than that of the whole of the preceding decennial period. Although this last statement, by itself considered, does not warrant entirely the estimate of the population of Philadelphia, I have no doubt the census of 1870 will justify it; at least, it will be shown that the original statement was not made without some reason.

N. A. Apollonio.

Poisoning by Arnica.—A case occurring in a woman of 33 years of age, is reported in *Schmidt's Zahrbücher*. She had drunk two glasses of infusion made from a large handful of the leaves. The symptoms of poisoning lasted seven days, and the patient was not quite well till the 12th. The prominent symptoms were violent vomiting, intense headache, choleriform diarrhœa, with very severe gastro-intestinal colic, followed by collapse, cold extremities, and remarkable depression of the pulse. The treatment consisted principally of the use of extract of thebaine and of morphine.—*Med. Record.*

A Prolific Child-Bearer.—Dr. A. C. White, Springfield, Tenn. (*Richmond and Louisville Med. Jour.*), publishes the case of a negress, only thirty-four years old, who has given birth to twenty-four children.—*Ibid.*

The venerable Charles D. Meigs, M.D., one of the most distinguished medical men of the day, died suddenly June 22, at his residence in Delaware County, Pa. Dr. Meigs was a native of Georgia, but since 1820 he has resided in Philadelphia. In the year 1840 he accepted a Professorship in Jefferson Medical College, and for twenty years he labored with much success in that institution. Dr. Meigs was connected with the obstetrical department of the Pennsylvania Hospital for about ten years, and he was well known, both in the Old and New World, as a clear and forcible writer on medical subjects.—*Med. Gazette.*

Nitrate of Silver in Surgery.—Dr. J. Higginbotham, F.R.S., describes in the *Practitioner* a method of treating recent injuries, wounds, erysipelas, &c., by the thorough application of nitrate of silver. He claims that the application of the stick of caustic to the whole surface of the wound causes a dense eschar, which maintains firm pressure until healing is effected, prevents sloughing, and supersedes all other treatment, save rest.—*Med. Record.*

Tracheotomy in Croup.—Nélaton saved his first case of croup when tracheotomy was performed, and then operated twenty-three times without a recovery. Probably he operated under all circumstances, like the majority of the French surgeons.—*Ibid.*

MEDICAL DIARY OF THE WEEK.

Monday, 9, A.M., Massachusetts General Hospital, Med. Clinic. 9, A.M., City Hospital, Ophthalmic Clinic.
Tuesday, 9, A.M., City Hospital, Medical Clinic, 10, A.M., Surgical Lecture. 9 to 11, A.M., Boston Dispensary. 9-11, A.M., Massachusetts Eye and Ear Infirmary.
Wednesday, 10, A.M., Massachusetts General Hospital, Surgical Visit. 11 A.M., Operations.
Thursday, 9 A.M., Massachusetts General Hospital, Medical Clinic. 10, A.M., Surgical Lecture.
Friday, 9, A.M., City Hospital, Ophthalmic Clinic; 10, A.M., Surgical Visit; 11, A.M., Operations. 9 to 11, A.M., Boston Dispensary.
Saturday, 10, A.M., Massachusetts General Hospital Surgical Visit; 11, A.M., Operations.

Errata and Corrections.—In the number for June 24th, page 384, for "feciesti" read *fuisti*.

In last issue, on page 401, first column, for "what we are" read *what are we*. Second column, sixth line, for "these things are" read *this is;* twelfth line, for "behind this state of things" read *in the back-ground*. Page 405, second column, line 8, period in place of comma; line 10, comma instead of semi-colon.

Deaths in Boston for the week ending July 3, 98. Males, 45—Females, 53.—Accident, 4—apoplexy, 1—inflammation of the bowels, 5—congestion of the brain, 3—disease of the brain, 2—bronchitis, 1—cancer, 5—cancrum oris, 2—cholera infantum, 1—consumption, 17—debility, 3—diphtheria, 1—dropsy of the brain, 4—drowned, 1—dysentery, 2—scarlet fever, 4—disease of the heart, 3—icterus, 1—disease of the kidneys, 2—congestion of the lungs, 2—inflammation of the lungs, 5—marasmus, 2—measles, 1—cerebro-spinal meningitis, 1—old age, 3—paralysis, 1—peritonitis, 1—premature birth, 3—puerperal disease, 1—pyæmia, 1—disease of the spine, 1—tumor, 2—unknown, 9—whooping cough, 3.

Under 5 years of age, 37—between 5 and 20 years, 13—between 20 and 40 years, 17—between 40 and 60 years, 19—above 60 years, 12. Born in the United States, 75—Ireland, 15—other places, 8.